



PHENIX MuID OPERATION IN THE PEH

procedure name

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REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	TYPED BY
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1.0 Purpose and Scope

The scope of this procedure is those operations that are necessary for running the PHENIX Muon Identifier subsystem (MuID). Operations in this procedure include the following:

1. Turning on the High Voltage.
2. Adjusting the High Voltage.
3. Responding to alarms.
4. Connecting/Disconnecting HV, LV and signal connectors from MuID system.
5. Shutting down the MUID system.

2.0 Responsibilities

- 2.1 Operator is responsible for conducting these procedures, logging activities, and responding to alarms.
- 2.2 Some operations may only be performed by a “MUID expert” (Attachment 1).

3.0 Prerequisites

- 3.1 Operator shall have all training required of regular PHENIX shift operators.
- 3.2 Operator shall obey the “Operating Procedures for the PHENIX High Voltage System” (PP-2.5.3.14-01) while operating the MuID system.
- 3.3 PHENIX gas experts shall obey “PHENIX MuID GAS OPS. IN THE PEH” (PP-2.5.2.13-10). The operator shall not cause the precautions listed in that procedure to be violated.

4.0 Precautions

- 4.1 Over-pressurization of the MUID will result in severe structural damage. Primary care should be given to monitoring the internal pressure of the MUID throughout the duration of this procedure, especially when adjusting flow rates.
- 4.2 All of the high voltage shall be turned off and disabled for at least one minute before connecting or disconnecting HV, LV or signal connectors to the panels.

5.0 Procedure

- 5.1 Turning on the High Voltage. Note that the modules in use have a hardware limit of 200 micro-amps.
 - 5.1.1 Only MUID experts may turn on the MUID high voltage.
 - 5.1.2 Operator shall obey all instructions described in “Operating Procedures for the PHENIX High Voltage System” (PP-2.5.3.14-01).
 - 5.1.3 Operator should confirm that the MuID gas has been circulating for at least 3 hours before attempting to turn on the high voltage.
- 5.2 Adjusting the High Voltage. Note that the modules in use have a hardware limit of 200 micro-amps.

- 5.2.1 Only MUID experts may turn on the MUID high voltage.
 - 5.2.2 Operator shall obey all instructions described in “Operating Procedures for the PHENIX High Voltage System” (PP-2.5.3.14-01).
- 5.3 Responding to alarms.
 - 5.3.1 HV Trip – attempt to reset channel. Inform MUID expert in cases of repeated trips.
 - 5.3.2 Rack smoke alarms – power will automatically be cut off, refer at this point to “Emergency Procedures for the PHENIX Experiment (AD-3.16).
- 5.4 Connecting/Disconnecting HV, LV, or signal connectors.
 - 5.4.1 The connection or disconnection of connectors must only be performed by experienced personnel authorized by a MUID expert and is rarely required.
 - 5.4.2 Operator shall follow the shutdown procedure listed below (Section 5.5).
 - 5.4.3 Operator shall wait at least one minute after ramping down the high voltage and disabling it before connecting or disconnecting connectors.
- 5.5 Shutting down the MUID system.
 - 5.5.1 Operator shall ramp down and disable all MuID low voltage power and confirm that all MUID low voltage power is off and disabled by noting that all MUID LEDs are green on the PHENIX LV display terminal.
 - 5.5.2 Operator shall turn off all MuID high voltage power and confirm that all MUID high voltage power is off and disabled by noting that all MUID HV mainframe indicators are white on the PHENIX HV display terminal.
 - 5.5.3 Operator shall allow CO2 to continue flowing unless extenuating circumstances (as determined by a MuID expert) exist.

6.0 Documentation

- 6.1 All notes and observations shall be recorded in the MuID system logbook located in the PHENIX counting house.
- 6.2 PHENIX standard checklists shall be completed at regular intervals and filed.

7.0 References

- 7.1 None.

8.0 Attachments

- 1. MUID experts
- 2. Alarm Conditions

Attachment 1: MUID Experts

The following people have detailed knowledge of the PHENIX MUID and are considered “MUID experts”. In addition they have completed the prerequisite BNL training courses (see 3.1).

Sotiria Batsouli
Vince Cianciolo
Yuri Efremenko
Ken Read
David Silvermyr
Atsushi Taketani
Chun Zhang

For operations required to be performed by a MUID expert, as noted in the specific procedures, additional personnel may be designated MUID experts by the PHENIX shift leader.

Additional MUID experts are to be listed below and posted in the counting house:

<u>ADDITIONAL MUID EXPERTS</u>		
<u>Name</u>	<u>Approved by</u>	<u>Date</u>

Attachment 2: Alarm Conditions

1. HV Trip – If a HV channel exceeds its pre-set maximum current it will automatically trip off and cause the beeping HV alarm to sound. Operator response – contact MUID on-call expert.
2. Rack smoke alarms – If a rack smoke alarm goes off, power will automatically be cut off. Operator response is detailed in “Emergency Procedures for the PHENIX Experiment” (AD-3.16).